GSM BASED MOTOR PROTECTION UNIT

Salient Features:

1. Fully programmable
2. No auxiliary power supply required for controller operation.
3. SMS controlled start/stop and remote monitoring.
4. Complete protection from electrical unhealthy condition.
5. All parameters are password protected.
6. All parameters are settable through front key.
7. LED indications for alarm (fault).
8. Scrolling display of parameters, one by one in scroll mode.
9. Onsite Voltage and current Calibration.
10. Four bright 7 segment display on unit.
11. Inverse Time trip curve for over load fault.

The Motor protection unit continuously scans the faults like Under Voltage, Over Voltage, SPP, Reverse Phase, Voltage Unbalance, Under Load, Over Load, Current unbalance.

Technical Specification:
Input Supply: 3 Phase 415 V, 50 HZ AC (3 Phase 4 wire)

Input Current: 0-18 A per phase

Accuracy:-1] Voltage 0.25% ± 1 dgts.
2] Current 0.25% ± 1 dgts.

Output contact Rating:
3 Pole 415V, 18Amp Contactor
7 A at 250 volt

Auxiliary Power: - No External power is required (Draws power from the voltage signal Inputs)

GSM MODEM: Quad-Band 850/ 900/ 1800/ 1900 MHz

Environmental:
1] Working Temp : 0 to 55º C
2] Storage Temp : 10 to 70º C
3] Relative humidity: 0–95 % non-condensive
4] Warm up time : 30 Sec

Enclosure:-
1] Mounting : Panel mounting.
2] Position : Panel.
3] Enclosure : 125(W) X 275 (L) X 210(H) mm.
4] Terminal : Screw ON Terminals.

KEY'S:

- SET: This key is used to change the controller from RUN mode to FUNCTION mode for Parameter setting & to save the modified setting in Function mode
- INC: Up scroll the parameter & parameter value.
- DEC: Down scroll the parameter & parameter value.

LED'S:
1. UV (RED): Under Voltage Fault.
2. OV (RED): Over Voltage Fault.
3. SPP/UB/RP (RED): SPP, Voltage Unbalance& Reverse Phase Fault.
4. UL/CUB (RED): Under Load & Current Unbalance Fault.
5. OL (RED): Over Load Fault.
6. Relay (Green): Supply Healthy (No fault)

WORKING:
Run Mode:
At Power On, under normal working condition, Relay indication led will blink and glow steady after power on delays.
Steady glow of Relay led indicates Relay on condition. Unit will enter '**Run Mode**', and will have a scrolling parameter display consisting of R-Y Voltage, Y-B Voltage, B-R Voltage & R, Y, B current drawn by each phase. In Run mode Relay may turn OFF depending on the occurrence of fault, ALARM indications for the particular fault will blink on the front panel of unit. Faults such as over / under load, will turn off relay and faults such as over / under voltage will turn off voltage relay. **Manual control** for **restart** after occurrence/clearance of fault has been programmed therefore user **has to press** decrement key to restart the unit. The unit will resume Run mode if fault disappears after delay.
The Front panel provides fault indication by blinking red led's for over/under voltage, over/under load, single phasing, unbalance & phase reverse.
User can view the parameters in Run mode display and can 'Hold' any Run mode parameter by pressing **increment** key in RUN mode.

In Overload condition when **Itcr** is selected as **NO** then it will take **2sec**.(settable) to trip Relay & if selected as **yes** then the relay will Trip as following condition.

% of set point	Trip time(sec.)
110	40
120	20
130	15
140	10
150	8
200	5
300	2
400	1

E.g.:- If Overload set point is 8A & actual current is 9.6A then it will take 20sec.(120%) to trip Relay.

NOTE: The under load and Over load faults will not sense until the feedback input is received (i.e. contact gets closed).

GSM Control:
The GSM control can be enabled or disabled using the programming menu. If the GSM control is enabled, the motor will start if "START" sms is received by the controller. The motor stops if any fault occurs or "STOP" sms is received by the controller. If any fault occurs the controller will send an sms which contains current fault status to 3 mobile numbers stored in the controller. The control sms are as explained below.

Sr. No	SMS	Function
	START	Starts the motor
	STOP	Stops the motor
	STATUS?	Replies the present status of the controller to the sender.
	REG NUM1 **********	Registers the number inside the controller phonebook. NOTE: 3 numbers can be stored in the phonebook. Syntax : REG<space>NUM1<space>********** (** represents 10 digit mobile number.) **Eg 1.** If user sends :-

		REG NUM1 9191919191 To the controller , the controller writes the mobile number 9191919191 to the 1st location of phonebook. **Eg 2.** If user sends :- REG NUM2 9191919191 To the controller , the controller writes the mobile number 9191919191 to the 2nd location of phonebook. NOTE: 3 numbers can be stored in the phonebook. **Eg 3.** If user sends :- REG NUM3 9191919191 To the controller , the controller writes the mobile number 9191919191 to the 3rd location of phonebook. NOTE: 3 numbers can be stored in the phonebook.

NOTE:
1. If any fault occurs to the motor, controller will send sms only to the 3 numbers registered in the phonebook.
2. Motor can be Started/Stopped by sending START/STOP sms through any number.
3. If STATUS? Sms is sent to the controller, the controller will reply the motor status only to the number from which STATUS? sms was received. Thus any number can inquire the controller status.

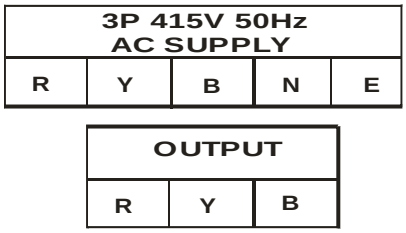
Function Mode:

Function key is used to enter '**Function mode**' to view/change settings. When function key is pressed for 2-3 seconds then "pwrd" message is displayed and then "0000", user can change the password by pressing increment and decrement keys, to enter the password press enter. If user enters correct password the controller enters Function mode, after entering Function mode, settings can be viewed by going on pressing the Function key. The default password for the unit is **5.**

Note:
Over Load fault trip time is applicable as per Inverse trip time curve.

Sr No	Parameter Name	Disp msg	Def value	Min Limit	Max Limit	Unit
1	Under Voltage	Uu	330	0	380	V
2	Over Voltage	ou	460	410	550	V
3	Voltage Unbalance	Ub	60	0	100	V
4	Current Unbalance	Cub	50	0	100	% OL
5	Reverse Phase	rP	yes	no	yes	NA
6	Under Load	UL	4.00	0.00	10.0	A
7	Over Load	oL	12.00	5.0	25.0	A
8	Under Voltage trip time	Uutr	4	1	10	Sec
9	Over Voltage trip time	outr	2	1	5	Sec
10	SPP Trip Time	SPtr	2	1	5	Sec
11	Unbalance trip time	Ubtr	2	1	5	Sec
12	Under Load trip time	ULtr	60	1	90	Sec
13	It characteristic	Itcr	yes	No	yes	NA
14	Relay ON time	rLon	10	5	300	Sec
15	Auto Reset selection	rSt	yes	No	yes	NA
16	GSM Enable	Gsm	no	no	yes	NA

Terminal Layout:



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